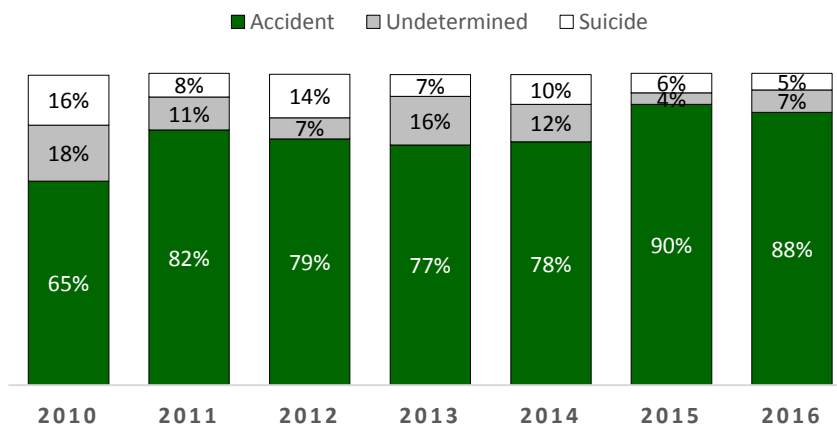


Opioid-Related Fatalities in Vermont

Opioid-Related Fatality Overview

In 2016, there were 112 opioid-related fatalities in Vermont (see definition to the right). Most of the deaths were determined to be accidental or undetermined. Six of those deaths were determined to be suicides (5% of all opioid-related deaths).

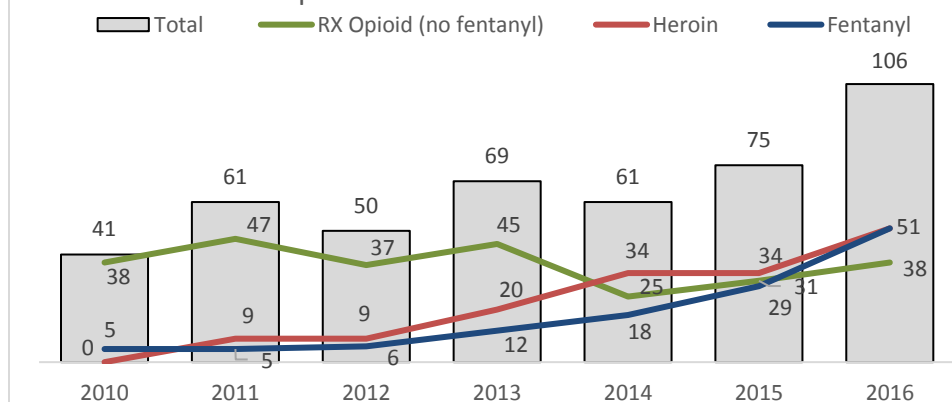
Figure 1: Manner of Death in Opioid-Related Fatalities



Accidental and Undetermined Opioid-Related Fatalities

Public attention has been focused on opioid misuse and abuse. All data that follows are accidental and undetermined cause fatalities that involved an opioid. Deaths due to suicide were removed to show deaths more likely associated with abuse and dependence of opioids – the type of death some consider an “overdose.” In 2016, there were 106 accidental and undetermined opioid-related fatalities in Vermont – a 41% increase from the 75 reported in 2015. This equates to a rate of 16.9 fatalities per 100,000 Vermonters. Opioid-related fatality has more than doubled since 2010, when 41 of these deaths were recorded (6.6 per 100,000).

Figure 2: Number of Accidental and Undetermined Opioid-Related Fatalities in VT



DRUG-RELATED FATALITY DATA

Vermont drug-related fatalities data come from the Vermont Department of Health Vital Statistics System and are based on deaths that occur in Vermont.

The drug-related fatalities reported here include accidents, suicides, homicides and fatalities with undetermined intent. All deaths involved at least one legal or illicit opioid including heroin or prescription drugs.

This report does *not* include deaths due to chronic substance use (such as HIV, liver disease, or infection); death due to injury related to substance use (i.e., car accident or falls) or deaths due to medical professional error.

Since opioid-related death is an important topic today, this brief specifically examines death related to opioids.

It is important to note that most drug-related fatalities are due to combinations of substances (e.g., a prescription opioid and cocaine), not a single drug. Additionally, the circumstances under which each of these fatalities occurred are unique, and cannot all be attributed to addiction and/or dependence.

Data from 2015, 2016 and 2017 are preliminary.

Of the 106 accidental and undetermined opioid-related fatalities, 88% were Vermont residents. Males comprise about two-thirds of accidental and undetermined opioid-related deaths in Vermont (68%). Women comprise one-third of these deaths (32%).

The average age of those who die from accidental or undetermined opioid-related cause is 40. Most of these opioid-related fatalities occur to those between 30 and 50 (59%). Nearly all accidental and undetermined opioid-related fatalities are among white, non-Hispanics (99%).

Substances Involved in Opioid-Related Death

Most opioid-related fatalities involve multiple substances. Half of opioid-related deaths (accidental and undetermined) involved either heroin or fentanyl (48% each). One-third involved prescription opioids (36%). Slightly fewer than one in five involve alcohol (18%) or cocaine (17%). Around one in ten involve methadone (12%), or benzodiazepines (9%). Only one death involved buprenorphine.

OPIOID-RELATED DEATH

Categories of opioids assessed include:

- **Total Opioids:** prescription opioids, opioids not otherwise defined, heroin and fentanyl.
- **Rx Opioids:** prescription opioids (excluding fentanyl).
- **Heroin:** includes heroin.
- **Fentanyl:** includes both prescription and illicit fentanyl.

Prescription opioid, fentanyl and heroin deaths do not add to total opioid deaths because most deaths involve multiple substances. Most deaths cannot be attributed to one substance.

Substance*	Number and Percentage of Accidental and Undetermined Opioid-Related Fatalities Substance Involved In 2016 Deaths	
Alcohol	19	18%
Benzodiazepines	10	9%
Buprenorphine	1	1%
Cocaine	18	17%
Fentanyl	51	48%
Heroin	51	48%
Methadone	13	12%
RX opioid (no fentanyl)	38	36%

*Categories are not mutually exclusive as one death may involve multiple substances.

Heroin- and fentanyl-related fatalities have risen sharply since 2013. Prescription opioid fatalities (excluding fentanyl) have been decreasing, most sharply since 2013. In 2016, for the first time, the number of deaths from fentanyl is equal to the number of deaths from heroin; and both heroin and fentanyl deaths are higher than prescription drug-related deaths. (See Figure 2.)

Sources

All data are from the Vermont Vital Statistics System and only include deaths that occurred in Vermont. Data from 2015, 2016 and 2017 are preliminary. This brief is a product of the Vermont Department of Health, Division of Health Surveillance Analysts Lela Kretzer, Lela.Kretzer@vermont.gov and Amanda Jones, Amanda.Jones@vermont.gov.

Opioid-Related Fatalities Occurring in VT		2016			2010		
		Number	Percent	Rate per 100K VT-ers	Number	Percent	Rate Per 100K VT-ers
Total Drug-Related Fatalities Occurring in VT		148	--	23.6	75	--	12.0
Total OPIOID-Related Fatalities Occurring in VT		112	76%	17.9	49	55%	6.6
		% of Opioid Fatalities			% of Opioid Fatalities		
By Manner	Accidental	98	88%	15.7	32	78%	5.1
	Undetermined	8	7%	1.3	9	22%	1.4
	Suicide	6	5%	1.0	8	20%	1.3
	Homicide	0	0%	0.0	0	2%	0.2
Total Accidental and Undetermined OPIOID-Related Fatalities Occurring in VT		106	72%	16.9	41	55%	6.6
		% of Accidental and Undetermined Manner Opioid-Related Fatalities Occurring in VT			% of Accidental and Undetermined Manner Opioid-Related Fatalities Occurring in VT		
Total VERMONT Residents Accidental and Undetermined OPIOID-Related Fatalities		93	88%	14.9	36	48%	5.8
Other Substances Involved							
	Alcohol	19	18%		5	12%	
	Benzodiazepines	10	9%		10	24%	
	Buprenorphine	1	1%		0	0%	
	Cocaine	18	17%		5	12%	
	Fentanyl	51	48%		5	12%	
	Heroin	51	48%		0	0%	
	Methadone	13	12%		11	27%	
	RX Opioid (excludes fentanyl)	38	36%		38	93%	
				Rate Per 100K of Sub Group			Rate Per 100K of Sub Group
By Gender	Male	72	68%	23.3	23	56%	7.5
	Female	34	32%	10.7	18	44%	5.7
By Age	< 30	20	19%	9.0	7	17%	3.0
	30 - 39	36	34%	50.8	8	20%	11.3
	40 - 49	26	25%	33.7	9	22%	9.8
	50 +	24	23%	9.4	17	41%	7.3
Average Age			40			45	
By Race/	White, Non-Hispanic	105	99%	18.0	41	100%	6.9
Ethnicity	Racial or Ethnic Minority	1	1%	2.4	0	0%	0.0

Opioid-Related Fatalities Occurring in VT	2016			2010		
	# and % of All Accidental and Undetermined Opioid-Related Death		Rate per 100K in County	# and % of All Accidental and Undetermined Opioid Related Death		Rate per 100K in County
<u>By County of Residence*</u>						
Addison	4	4%	10.8	3	7%	8.1
Bennington	6	6%	16.5	2	5%	5.4
Caledonia	4	4%	13.0	1	2%	3.2
Chittenden	21	20%	13.0	11	27%	7.0
Essex	0	0%	0.0	0	0%	0.0
Franklin	7	7%	14.3	3	7%	6.3
Grand Isle	2	2%	29.2	0	0%	0.0
Lamoille	3	3%	11.9	0	0%	0.0
Orange	4	4%	13.8	1	2%	3.5
Orleans	6	6%	22.1	0	0%	0.0
Rutland	12	11%	20.1	4	10%	6.5
Washington	8	8%	13.6	3	7%	5.0
Windham	2	2%	4.6	3	7%	6.7
Windsor	13	12%	23.3	5	12%	8.8
Non-VT Residents (Rate Per 100K Vters)	13	13%	2.2	5	12%	0.8
<u>By County of Death</u>						
Addison	6	6%	16.2	3	7%	8.1
Bennington	6	6%	16.5	2	5%	5.4
Caledonia	5	5%	16.2	1	2%	3.2
Chittenden	24	23%	14.9	13	32%	8.3
Essex	1	1%	16.2	0	0%	0.0
Franklin	7	7%	14.3	3	7%	6.3
Grand Isle	1	1%	14.6	0	0%	0.0
Lamoille	3	3%	11.9	1	2%	4.1
Orange	4	4%	13.8	1	2%	3.5
Orleans	6	6%	22.1	0	0%	0.0
Rutland	11	10%	18.4	6	15%	9.7
Washington	8	8%	13.6	3	7%	5.0
Windham	6	6%	13.8	3	7%	6.7
Windsor	18	17%	32.3	5	12%	8.8

*One death is indicated as a Vermont resident; however, no county of residence is listed.

Annual Opioid-Related Deaths by County of Death

The following tables list the number of drug-related fatalities by the county of death. Please note that these numbers are very small and variable. Regional numbers should be interpreted with caution. In addition, the county of death is not necessarily where the person lives or where the incident occurred. For example, individuals may be transferred to a hospital in another county as a result of an overdose and the death would be recorded as occurring at that hospital.

**Number of Opioid-Related Accidental or Undetermined Fatalities
by Year and County of Death**

	2010	2011	2012	2013	2014	2015	2016
Addison County	3	1	0	4	2	0	6
Bennington County	2	4	3	4	4	1	6
Caledonia County	1	0	0	1	5	2	5
Chittenden County	13	17	17	18	19	20	24
Essex County	0	1	2	1	0	1	1
Franklin County	3	4	4	7	5	7	7
Grand Isle County	0	0	0	0	0	1	1
Lamoille County	1	3	2	3	2	1	3
Orange County	1	5	1	3	1	3	4
Orleans County	0	1	4	4	2	6	6
Rutland County	6	9	2	11	7	14	11
Washington County	3	5	6	7	1	4	8
Windham County	3	6	4	3	7	3	6
Windsor County	5	5	5	3	6	12	18
TOTAL	41	61	50	69	61	75	106

**Number of Prescription Opioid-Related Accidental or Undetermined Fatalities (Excluding Fentanyl) by
Year and County of Death**

	2010	2011	2012	2013	2014	2015	2016
Addison County	2	0	0	2	0	0	3
Bennington County	2	4	3	1	2	0	4
Caledonia County	1	0	0	1	4	1	3
Chittenden County	12	13	11	14	7	5	5
Essex County	0	1	1	1	0	0	1
Franklin County	3	4	4	5	2	4	5
Grand Isle County	0	0	0	0	0	0	0
Lamoille County	1	2	2	3	1	0	1
Orange County	1	4	0	2	1	2	0
Orleans County	0	1	4	4	0	3	3
Rutland County	6	4	0	4	4	4	2
Washington County	3	5	6	4	1	3	3
Windham County	3	5	3	2	1	1	1
Windsor County	4	4	3	2	2	8	7
TOTAL	38	47	37	45	25	31	38

**Number of Heroin-Related Accidental or Undetermined Fatalities
by Year and County of Death**

	2010	2011	2012	2013	2014	2015	2016
Addison County	0	1	0	1	0	0	1
Bennington County	0	0	0	2	1	1	1
Caledonia County	0	0	0	0	2	0	3
Chittenden County	0	4	4	5	12	10	14
Essex County	0	0	0	0	0	1	0
Franklin County	0	0	0	2	3	2	2
Grand Isle County	0	0	0	0	0	1	0
Lamoille County	0	0	0	0	0	0	1
Orange County	0	1	1	1	1	1	2
Orleans County	0	0	0	0	1	2	1
Rutland County	0	3	2	6	5	10	6
Washington County	0	0	0	1	0	0	5
Windham County	0	0	1	1	4	2	4
Windsor County	0	0	1	1	5	4	11
TOTAL	0	9	9	20	34	34	51

**Number of Fentanyl-Related Accidental or Undetermined Fatalities
by Year and County of Death**

	2010	2011	2012	2013	2014	2015	2016
Addison County	1	0	0	2	2	0	3
Bennington County	0	0	0	1	1	0	3
Caledonia County	0	0	0	0	0	1	1
Chittenden County	1	0	3	1	8	10	15
Essex County	0	0	1	0	0	0	0
Franklin County	0	0	0	2	1	4	3
Grand Isle County	0	0	0	0	0	0	1
Lamoille County	0	1	0	1	1	1	1
Orange County	1	0	0	0	0	2	3
Orleans County	0	0	1	0	0	2	3
Rutland County	1	2	0	2	2	2	5
Washington County	0	0	0	3	0	2	2
Windham County	0	1	0	0	2	1	3
Windsor County	1	1	1	0	1	4	8
TOTAL	5	5	6	12	18	29	51

2017 PRELIMINARY DATA Updates

The following data will be updated monthly with a 10- to 12-week time lag. Historic data may change if there are delays in reporting and all data in the following tables should be considered preliminary until final data is published.

2017 Month of Death	Total Number of Opioid-Related Accidental and Undetermined Manner Fatalities			
	Total*	Rx opioid (no fentanyl)	Heroin	Fentanyl
January	7	2	3	6
February	10	4	5	5
March	12	5	4	5
April				
May				
June				
July				
August				
September				
October				
November				
December				
TOTAL	29	11	12	16

**NOTE: Prescription opioid, fentanyl and heroin deaths are not mutually exclusive.*

Total Number of Opioid-Related Accidental and Undetermined Fatalities, Preliminary 2017 Data by County of Death													
Place of death	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Addison County	0	0	0										0
Bennington County	1	0	0										1
Caledonia County	0	1	1										2
Chittenden County	3	1	4										8
Essex County	0	0	0										0
Franklin County	0	1	0										1
Grand Isle County	0	0	0										0
Lamoille County	1	0	1										2
Orange County	0	1	0										1
Orleans County	0	0	1										1
Rutland County	1	2	3										6
Washington County	0	0	0										0
Windham County	0	3	1										4
Windsor County	1	1	1										3
VERMONT Total	7	10	12										29

The drug-related fatalities here include only opioid-related accidental and undetermined manner fatalities. They do not include suicide or homicide. This report does not include deaths due to the consequences of chronic substance use such as HIV, liver disease or infection; or deaths due to errors by medical professionals. This report also does not include deaths due to injury such as car crashes related to substance abuse. It is important to note that most drug-related fatalities are due to combinations of substances and cannot be attributed to a single drug. It is also important to note that the conditions under which each of these fatalities occurred are unique and cannot all be attributed to addiction and/or dependence.

Total Number of Prescription Opioid-Related Accidental and Undetermined Fatalities (no fentanyl), Preliminary 2017 Data by County of Death													
Place of death	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Addison County	0	0	0										0
Bennington County	1	0	0										1
Caledonia County	0	1	1										2
Chittenden County	1	1	1										3
Essex County	0	0	0										0
Franklin County	0	1	0										1
Grand Isle County	0	0	0										0
Lamoille County	0	0	1										1
Orange County	0	0	0										0
Orleans County	0	0	0										0
Rutland County	0	1	1										2
Washington County	0	0	0										0
Windham County	0	0	1										1
Windsor County	0	0	0										0
VERMONT Total	2	4	5										11

The drug-related fatalities here include prescription opioid-related accidental and undetermined manner fatalities (excluding fentanyl). They do not include suicide or homicide. This report does not include deaths due to the consequences of chronic substance use such as HIV, liver disease or infection; or deaths due to errors by medical professionals. This report also does not include deaths due to injury such as car crashes related to substance abuse. It is important to note that most drug-related fatalities are due to combinations of substances and cannot be attributed to a single drug. It is also important to note that the conditions under which each of these fatalities occurred are unique and cannot all be attributed to addiction and/or dependence.

Total Number of Heroin-Related Accidental and Undetermined Fatalities, Preliminary 2017 Data by County													
Place of death	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Addison County	0	0	0										0
Bennington County	0	0	0										0
Caledonia County	0	0	0										0
Chittenden County	2	0	0										2
Essex County	0	0	0										0
Franklin County	0	0	0										0
Grand Isle County	0	0	0										0
Lamoille County	1	0	0										1
Orange County	0	1	0										1
Orleans County	0	0	1										1
Rutland County	0	2	2										4
Washington County	0	0	0										0
Windham County	0	1	0										1
Windsor County	0	1	1										2
VERMONT Total	3	5	4										12

The drug-related fatalities here include heroin-related accidental and undetermined manner fatalities. They do not include suicide or homicide. This report does not include deaths due to the consequences of chronic substance use such as HIV, liver disease or infection; or deaths due to errors by medical professionals. This report also does not include deaths due to injury such as car crashes related to substance abuse. It is important to note that most drug-related fatalities are due to combinations of substances and cannot be attributed to a single drug. It is also important to note that the conditions under which each of these fatalities occurred are unique and cannot all be attributed to addiction and/or dependence.

Total Number of Fentanyl-Related Accidental and Undetermined Fatalities, Preliminary 2017 Data by County of Death													
Place of death	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Addison County	0	0	0										0
Bennington County	0	0	0										0
Caledonia County	0	0	1										1
Chittenden County	3	0	2										5
Essex County	0	0	0										0
Franklin County	0	0	0										0
Grand Isle County	0	0	0										0
Lamoille County	1	0	0										1
Orange County	0	1	0										1
Orleans County	0	0	0										0
Rutland County	1	2	2										5
Washington County	0	0	0										0
Windham County	0	2	0										2
Windsor County	1	0	0										1
VERMONT Total	6	5	5										16

The drug-related fatalities here include fentanyl-related accidental and undetermined manner fatalities. They do not include suicide or homicide. This report does not include deaths due to the consequences of chronic substance use such as HIV, liver disease or infection; or deaths due to errors by medical professionals. This report also does not include deaths due to injury such as car crashes related to substance abuse. It is important to note that most drug-related fatalities are due to combinations of substances and cannot be attributed to a single drug. It is also important to note that the conditions under which each of these fatalities occurred are unique and cannot all be attributed to addiction and/or dependence.

Vermont Methodology for Calculating Drug-related Fatalities

The Vermont Department of Health utilizes a unique methodology for calculating a drug-related fatality. The VDH method differs from the CDC methodology, as described in in MMWR: *Increases in Drug and Opioid-Involved Overdose Deaths — United States, 2010–2015*:

“The National Vital Statistics System multiple cause-of-death mortality files were used to record drug overdose deaths. Drug overdose deaths were identified using the *International Classification of Disease, Tenth Revision* (ICD-10), based on the ICD-10 underlying cause-of-death codes X40–44 (unintentional), X60–64 (suicide), X85 (homicide), or Y10–Y14 (undetermined intent). Among deaths with drug overdose as the underlying cause, the type of opioid is indicated by the following ICD-10 multiple cause-of-death codes: opioids (T40.0, T40.1, T40.2, T40.3, T40.4, or T40.6); natural/semisynthetic opioids (T40.2); methadone (T40.3); synthetic opioids other than methadone (T40.4); and heroin (T40.1). Some deaths involved more than one type of opioid; these deaths were included in the rates for each subcategory. Therefore, categories of deaths presented are not mutually exclusive.”

<https://www.cdc.gov/mmwr/volumes/65/wr/mm655051e1.htm>

Vermont’s drug-related fatality data brief uses Vital Statistics data and includes all deaths that occur in Vermont, regardless of residency of the individual. Determining a drug-related fatality is a multi-step process. Any death certificate with a pending investigation or natural death classification is removed before analyses. All causes of death, including any contributing conditions are scanned to recognize any ICD code that represents a drug poisoning (including alcohol). Next, the injury description text is also examined to identify any listed alcohol or drugs. Fatalities related to chronic alcohol use, medical complications of medication administration, end of life care, intrauterine or gestational exposure, helium, or exposure/injury in the context of intoxication are excluded as they do not represent a likely “overdose”. The main difference between the methodologies is VDH’s consideration of all causes of death, contributing conditions and injury descriptions as opposed to underlying cause of death only. For example, an underlying cause of death may be cardiovascular accident but the injury description field in the death record, lists “intentional ingestion of prescribed medication”. VDH would report that case as a drug-related fatality while the CDC would not. This accounts for the higher count of drug-related fatalities by VDH. The Vermont method of fatality identification reveals 10-15% *more* fatality on average compared to the CDC’s methodology’s findings for Vermont.

	Number of Drug-Related Fatalities	
	CDC Methodology	Vermont Methodology
2013	93	99
2014	83	98
2015	99	108